REMARKS

I.   Introduction

In response to the Office Action dated July 10, 2008, and in conjunction with the Request for Continued Examination (RCE) submitted herewith, claims 5, 6, 7, 9, 10, 12, 20, 21, 22, 24, 25, 35, 36, 37, 39, 40 and 42 have been canceled, and claims 1, 11, 13, 14, 15, 16, 26, 28, 29, 30, 31, 41, 43, 44 and 45 have been amended. Claims 1-4, 8, 11, 13-19, 23, 26-34, 48, 41 and 43-45 remain in the application. Re-examination and re-consideration of the application is requested.

II.   Prior Art Rejections

In paragraph (6) of the Office Action, claims 1-4, 6-8, 12, 16-19, 21-23, 27, 31-34, 36-38, and 42 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson et al., U.S. Patent No. 7,082,411 (Johnson) in view of Sulkowski et al., U.S. Publication No. 2004/0039688 (Sulkowski). In paragraph (7) of the Office Action, claims 5, 20, and 35 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson in view of Sulkowski and further in view of Atkins, U.S. Patent No. 5,852,811 (Atkins). In paragraph (8) of the Office Action, claims 13, 28, and 43 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson in view of Sulkowski and further in view of Gillis, U.S. Patent No. 6,405,189 (Gillis). In paragraph (9) of the Office Action, claims 15, 30, and 45 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson in view of Sulkowski in view of Gillis and further in view of Chen et al., U.S. Patent No. 6,625,624 (Chen). In paragraph (10) of the Office Action, claims 9, 11, 14, 24, 26, 29, 39, 41, and 44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson in view of Sulkowski in view of Choy et al., U.S. Patent No. 5,551,027 (Choy). In paragraph (11) of the Office Action, claims 10, 25, and 40 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson in view of Sulkowski in view of Choy and further in view of Foran et al., U.S. Publication No. 2003/0147552 (Foran).

Applicants' attorney respectfully traverses these rejections.

Independent claims 1, 16 and 31 are generally directed to performing financial processing in a computer. Claim 1 is representative and is directed to a method of performing financial processing in one or more computers, comprising: (a) selecting accounts, forecast amounts, and attrition and propensity rates from a database through parallel processing of a selector function, wherein the selector function uses selection criteria specified by rules to select the accounts,

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forecast amounts, and attrition and propensity rates from the database, the selector function dynamically generates Structured Query Language (SQL) statements using the selection criteria, the selection criteria are grouped in order to combine them in the dynamically generated SQL statements, and the grouped selection criteria are processed independently and in parallel to yield output tables comprising the accounts, forecast amounts, and attrition and propensity rates selected from the database; and (b) performing one or more Net Present Value (NPV) and Future Value (FV) calculations on the selected accounts using the selected forecast amounts and attrition and propensity rates, wherein results from the NPV and FV calculations are integrated to provide a Life-Time Value (LTV) of one or more customers. The combination of Johnson and Sulkowski does not teach or suggest all of the various elements of Applicants' independent claims.

Nonetheless, the Office Action asserts the following:

> 6. Claims 1-4, 6-8, 12, 16-19, 21-23, 27, 31-34, 36-38 and 42 are rejected under 35 U.S. C. 103(a) as being unpatentable over US Patent Number 7,082,411 to Johnson et al (hereinafter Johnson) in view of US Patent Application Number US2004/0039688 to Sulkowski et al (hereinafter Sulkowski).
>
> As per claims 1, 16 and 31 Johnson discloses selecting accounts, amounts and rates (asset data) from a database through a selector function, wherein the selector function uses selection criteria specified by rules to select the accounts, amounts and rates from the database (column 4, lines 10-19) and performing one or more Net Present Value (NPV) (column 9, lines 3-26) and Future Value (FV) (C_1, expected payoff) calculations on the selected accounts using the selected amounts and rates (column 9, lines 3-26 & 58-60), Johnson does not specifically teach results from the NPV and FV calculations are integrated to provide a Life-Time Value (LTV) of one or more customers.
>
> Sulkowski teaches results from the NPV and FV calculations are integrated to provide a Life-Time Value (LTV) of one or more customers (paragraph [0009-0010]).
>
> Therefore it would have been obvious to one skilled in the art at the time the invention was made that results from the NPV and FV calculations are integrated to provide a Life-Time Value (LTV) of one or more customers as taught by Sulkowski to accurately evaluate future profitability of assets by taking into account present and future values.
>
> *   *   *
>
> As per claims 6, 21 and 36 Johnson discloses the rates comprise attrition rates (discount factor) (column 9, lines 3-11).

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Examiner notes that applicant's specification conceptually defines attrition rates as "the rate at which a cash flow will be decreased" (page 8, lines 25-26). Johnson teaches a discount factor. One skilled in the art at the time the invention was made would understand that a discount factor is a rate used to discount or decrease future cash flow.

As per claims 7, 22 and 37 Johnson discloses the rates comprise propensity rates (risk) (column 9, lines 20- 22 & column 16, lines 49-51).

As per claims 8, 23 and 38 Johnson discloses the NPV and FV calculations are based on the rules (column 4, lines 10-19 & column 9, lines 3-26 & 58-60).

As per claims 12, 27 and 42

Johnson discloses the selector function generates statements (criteria ... for use in valuating other asset data) that are executed by a database management system to perform the selection of the accounts, amounts and rates (column 4, lines 10-19).

In addition, the Office Action asserts the following:

7. Claims 5, 20 and 35 are rejected under 35 U.S. C. 103(a) as being unpatentable over US Patent Number 7,082,411 to Johnson et al (hereinafter Johnson) in view of US Patent Application Number US2004/0039688 to Sulkowski et al (hereinafter Sulkowski) further in view of US Patent Number 5,852,811 to Atkins (hereinafter Atkins).

As per claims 5,20 and 35

Johnson does not specifically teach the amounts comprise forecast amounts.

Atkins discloses the amounts comprise forecast amounts.

Therefore it would have been obvious to one skilled in the art at the time the invention was made that the amounts comprise forecast amounts as taught by Atkins as a type of selected amount found in a database to select in order to determine values and rates regarding the asset utilizing the time value money equations.

The Office Action also asserts the following:

10. Claims 9, 11, 14, 24, 26, 29, 39,41 and 44 are rejected under 35 U.S. C. 103(a) as being unpatentable over US Patent Number 7,082,411 to Johnson et al (hereinafter Johnson) in view of US Patent Application Number US2004/0039688 to Sulkowski et al (hereinafter Sulkowski) in view of US Patent Number 5,551,027 to Choy et al (hereinafter Choy).

As per claims 9,24 and 39 Johnson does not specifically teach the selector function groups the selection criteria, so that the grouped selection criteria are processed in parallel.

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Choy teaches the selector function groups the selection criteria, so that the grouped selection criteria are processed in parallel (column 7, lines 12-34 & column 25, lines 24-54).

Therefore it would have been obvious to one skilled in the art at the time the invention was made that the selector function groups the selection criteria, so that the grouped selection criteria are processed in parallel as taught by Choy in order to process similar selections together concurrently so that fewer passes need to be made through the tables in the relational database.

As per claims 11, 26 and 41 Johnson does not specifically teach the grouped selection criteria comprise similar selection criteria. Choy teaches teach the grouped selection criteria comprise similar selection criteria (column 2, lines 26-29 & 36-43).

Therefore it would have been obvious to one skilled in the art at the time the invention was made that teach the grouped selection criteria comprise similar selection criteria as taught by Choy to improve efficiency in selecting the same criteria.

As per claims 14, 29 and 44 Johnson does not specifically teach the statements are optimized so that the statements are executed in parallel by the database management system.

Choy teaches the statements are optimized so that the statements are executed in parallel by the database management system (column 7, lines 12-34 & column 25, lines 24-54).

Therefore it would have been obvious to one skilled in the art at the time the invention was made that the statements are optimized so that the statements are executed in parallel by the database management system as taught by Choy in order to process similar selections together concurrently so that fewer passes need to be made through the tables in the relational database.

Finally, the Office Action asserts the following:

11. Claims 10, 25 and 40 are rejected under 35 U.S. C. 103(a) as being unpatentable over US Patent Number 7,082,411 to Johnson et al (hereinafter Johnson) in view of US Patent Application Number US2004/0039688 to Sulkowski et al (hereinafter Sulkowski) in view of US Patent Number 5,551,027 to Choy et al (hereinafter Choy) and further in view of US Patent Application Number US2003/0147552 to Foran et al (hereinafter Foran).

As per claims 10, 25 and 40 Johnson does not specifically teach the grouped selection criteria are processed independently. Foran teaches the grouped selection criteria are processed independently (paragraph [0045], lines 8-14).

Therefore it would have been obvious to one skilled in the art at the time the invention was made that the grouped selection criteria are processed independently as disclosed by Foran to ensure that each selection is processed correctly without chancing mixing up selections which would skew results.

Applicants' attorney respectfully disagrees.

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Consider, for example, the portions of the Johnson, Sulkowski, Atkins, Choy and Foran references cited by the Office Action, which are set forth below:

Johnson: column 4, lines 10-19
Individual asset data (not shown) for each asset in portfolio 12 is entered into a database 76 from which selected data 78 is retrieved based on a given criteria 80 for the iterative and adaptive process 32. When criteria 80 is established for valuation of any asset, that established criteria 80 is stored in database 76 for use in valuating other asset data in database 76 which shares such an established criteria. Iterative and adaptive valuation process 32 thus develops 82 valuations (described below) and groups 84 them for use in bidding.

Johnson: column 9, lines 3-26
In general, NPV is defined as:

$$NPV = c_0 + \frac{c_1}{1+r}$$

where C.sub.0 is the investment at time 0, C.sub.1 is the expected payoff at time 1, and r is the discount factor. The basic idea is that a dollar today is worth more than a dollar tomorrow.
In the case of insurance policies, NPV is defined as:

$$NPV = \sum P - \sum E - (\sum C) \times \frac{A}{E_W}$$

where P is the premium, E is the expected nominal cost, and C is the claim cost. In essence, Equation B is how net income as the difference of profit and weighted expected risk is generated. Note that the summation is summing across all the policies in a specific segment. Also note that all the premium, nominal cost, and claim cost have been discounted before entering the equation. As a result, a profitability score is generated.

Johnson: column 9, lines 58-60
Each potential bidder has a range of possible bids that might be submitted to a sealed bid auction. The range of bids can be expressed as a statistical distribution. By stochastically sampling from a distribution of bid values, one possible auction scenario may be simulated. Further by using an iterative sampling technique, for example a Monte Carlo analysis, many scenarios are simulated to produce a distribution of outcomes. The distribution of outcomes include a probability of winning the auction item(s) and the value gain. By varying the value of ones own bid, a probability of winning the auction against ones own bid price can be determined.

Sulkowski: paragraph [0009-0010]
[0009] The present invention, referred to as the Lifetime-value (LTV) framework, is directed to a system and method that permits accurate forecasting of the future value of credit accounts. The LTV framework estimates the Lifetime-value of each credit account. An account is characterized by its cash

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flows, product attributes, and degree of belongingness to customer behavior segments based on common patterns such as revolving and transacting. By examining how accounts migrate between behavior segments over multiple quarters and analyzing the discounted cash flows associated with these migration patterns, a net present value is calculated for each account.

[0010] The Lifetime-value is thus risk-based, in that it takes the past, current and future charge-off risk of an account into consideration, and includes a capital charge, i.e. the cost associated with capital employed by a financial institution, for example, to provision for unanticipated risk.

Atkins: Abstract

A personal financial program is disclosed incorporating means of implementing, coordinating, supervising, planning, analyzing and reporting upon investments in an array of asset accounts and liability accounts within a client account. Through a prioritization function, the client specifies his financial objectives, his risk preference, a forecast of economic and financial variables, and budgetary constraints. The prioritization function suggests to the client a portfolio of asset and liability accounts that may be credited and debited to form investments and borrowings to best realize his financial objectives over a defined time horizon. In the preferred embodiment a central structural element of the financial account is a liability account secured by the client's home and one or more asset accounts. Client funds that would normally be used to amortize the mortgage may be alternatively used according to a prioritized allocation of funds to asset accounts and liability accounts. The client account is imbalanced if the client's borrowing power is less than the minimum borrowing power specified by the financial institution. If the account is imbalanced, the client may reallocate the assets and liabilities within the client account and/or modify a set of constraints on the client account. If the client account is still not balanced after modification of the account, the system initiates a liquidation procedure.

Choy: column 2, lines 26-29 & 36-43 (actually, lines 20-54)

A database object may be partitioned either horizontally or vertically according to the content of its records and fields. A horizontal partition would mean that certain rows of the table would be stored at one storage site while other rows in the table are stored at other storage sites. A vertically partitioned table would have certain columns or fields stored at one storage site while other fields would be stored at other sites. Separate index trees might be built for each of the partitions. One tree may contain the names and addresses of employees A-J while another tree contains names and addresses of employees K-L and so on. In such a manner, very large volumes of record information can be stored across multiple storage sites with the table partitioning method depending on the type of information stored and the application.

A Relational Database Management System (RDBMS) may be used to manage the table information that has been distributed across multiple partitions or nodes. In the case where a database table is partitioned according to the content of its records, one or more fields of a particular table record can be designated as

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the Partition Key of that individual record. One case might be to designate the employee serial number as the partition key of that employee's record and store in each partition a set of records containing serial numbers within a certain range of values. A different partitioning criterion may group the records directly by their Partition Key Values, which might be some other piece of information contained in the record, such as the employee's work location, and may further determine a partition by hashing on the value of the work location field. On the other hand, a database table may also be partitioned using a non-content based criterion, such as some inter-table relationship that is not related to the information contained in the employee's record, but rather a insertion storage site or node.

Choy: column 7, lines 12-34

A database object, such as a table managed by a Relational Database Management System or RDBMS, may be horizontally-partitioned such that each record of the object is stored in one of the many partitions of the object. Each partition of the object is typically associated with a group of physical storage that is disjoint from those of the other partitions and may or may not be managed by a separate processor. A partition has a unique Partition Identifier or PID. The motivations for horizontally partitioning a database object are to partition data among multiple nodes or processors within a single DBMS system so as to facilitate parallel processing of a DBMS query, to support a distributed object among multiple nodes or sites in a DBMS network so as to allow each node to retain access efficiency for the local records, and to partition a large database object over multiple storage groups so as to facilitate the administration of the physical storage volumes. It should be understood that the above paradigm, wherein each partition of a database object is managed by a separate local DBMS node, is what is assumed for the preferred embodiment of the present invention. However, the invention is equally applicable to other forms of partitioned data.

Choy: column 25, lines 24-54

In summary, a novel multi-tiered indexing method is provided for a partitioned data direct in a parallel or distributed database system which has a Local Index created and maintained for each partition of the object and a Coarse Global Index is optionally created and maintained. The Coarse Global Index identifies the indexed partition(s) by partition identifiers (PIDs). The Coarse Global Index associates the individual Index Key values with their target partitions so that an access request with a highly partition-selective search predicate on the Index Key can be quickly and easily directed to the target partition(s) for processing. An index maintenance locking protocol is also provided which assures the consistency between the Local Index entries and the Coarse Global Index entries during concurrent index accesses by different transactions. The locking protocol handles the insertion and deletion of index entries simply and efficiently. The locking protocol for both the unique and non-unique Local Index schemes that minimizes locking only to those cases involving an inserted or deleted key and to the key following and possibly the key preceding the inserted or deleted key allows very high concurrency between simultaneous

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Readers, Inserters, and Deleters. An insert or delete operation that needs to be performed on the Coarse Global Index can be initiated only after all the locking required for performing the corresponding Local Index operation has been completed in order to correctly determine whether in fact the Coarse Global Index update operation is required or not. The present method enhances the efficiency of complex query evaluation and index maintenance, and attains a high throughput for transaction processing.

Foran: paragraph [0045]

[0045] As shown in step 412, images and image data, such as image location and the quantitative evaluations discussed above, may be archived. This may be performed automatically, with images and associated data being stored in one or more local and/or distributed relational databases. The commercially available Oracle 8i database system is one database suitable for use with the number and size of records typically encountered in the images contemplated herein. It will be appreciated that each of the steps of disk image acquisition 408, disk analysis 410, and data archiving 412 may be performed in parallel for all disks on a tissue microarray, for groups of disks such as rows, or individually for each disk, and repeated as appropriate until all disks on the tissue microarray are processed. The order in which disks are processed may depend on memory and processing constraints of the system employed, or upon programming convenience. In one embodiment, each disk is processed individually and fed to a database before the next disk in the tissue microarray is analyzed.

The above portions of Johnson merely describe retrieving individual asset data from a database based on a given criteria, performing an NPV calculation, and the statistical distribution of outcomes in a sealed bid auction. However, notwithstanding this recital, the above portions of Johnson do not describe a selector function that uses selection criteria specified by rules to select accounts, forecast amounts, and attrition and propensity rates from a database. Indeed, the above portions of Johnson do not refer to rules used by a selector function for accessing a database. In addition, the above portions of Johnson do not refer to the selection of attrition rates or propensity rates from a database. Finally, although the above portions of Johnson describe the calculation of NPV, the above portions of Johnson do not refer to the calculation of FV or the subsequent calculation of LTV, as admitted in the Office Action.

Similarly, the above portions of Sulkowski do not describe a selector function that uses selection criteria specified by rules to select the accounts, forecast amounts, and attrition and propensity rates from the database, which is essentially conceded by the Office Action. Moreover, the Office Action errs when it asserts that the above portions of Sulkowski describe performing NPV and FV calculations on selected accounts using selected forecast amounts, and

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attrition and propensity rates, wherein results from the NPV and FV calculations are integrated to provide an LTV. Indeed, the above portions of Sulkowski do not teach or suggest results from the NPV and FV calculations being integrated to provide an LTV. Instead, the above portions of Sulkowski describe how its LTV framework estimates the LTV value of each credit account, but refers only to the calculation of a NPV for each account. In Applicants' claimed invention, on the other hand, both NPV and FV calculations are performed on the selected accounts using the selected forecast amounts, and attrition and propensity rates, and the results from both the NPV and FV calculations are integrated to provide an LTV.

The above portions of Atkins also merely describe a personal financial program incorporating means of implementing, coordinating, supervising, planning, analyzing and reporting upon investments in an array of asset accounts and liability accounts within a client account. In this context, the client specifies his financial objectives, his risk preference, a forecast of economic and financial variables, and budgetary constraints. However, these "forecast amounts" are not used in the same context of Applicants' claims, namely the calculation of Net Present Value (NPV) and Future Value (FV) where the results of those calculations are integrated to provide a Life-Time Value (LTV).

In addition, the above portions of Choy merely describe a multi-tiered indexing method for a partitioned table in a parallel or distributed database system. In Choy, a database object may be partitioned either horizontally or vertically according to the content of its records and fields, wherein a horizontal partition would mean that certain rows of the table would be stored at one storage site while other rows in the table are stored at other storage sites and a vertically partitioned table would have certain columns or fields stored at one storage site while other fields would be stored at other sites. Further, Choy describes how separate index trees can be built for each of the partitions. However, Choy says nothing about selection criteria being grouped in order to combine them in dynamically generated SQL statements, or that such grouped selection criteria are processed independently and in parallel to yield output tables comprising accounts, forecast amounts, and attrition and propensity rates selected from the database for use in both Net Present Value (NPV) and Future Value (FV) calculations that are integrated to provide a Life-Time Value (LTV). Indeed, the only reference to "parallel" in Choy is to the fact that the database is partitioned in a "parallel" system, which is an alternate term for a "distributed" system.

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Finally, the above portions of Foran merely describe systems for analyzing samples in a tissue microarray using a robotic microscope and an imaging workstation, wherein images and quantitative data from the images may then be stored in a relational database for subsequent review. The tissue microarray in Foran includes a plurality of disks, wherein each disk includes a sample of a biological specimen. The cited portions of Foran merely describe how the steps of disk image acquisition, disk analysis, and data archiving may be performed in parallel for all disks on a tissue microarray, for groups of disks such as rows, or individually for each disk, and repeated as appropriate until all disks on the tissue microarray are processed. However, Foran says nothing about processing selection criteria independently and in parallel. Indeed, the above portions of Foran never refer to any processing of queries or SQL statements having selection criteria. Instead, the only "independent" acts performed in Foran are the different functions of the robotic microscope, imaging workstation, and relational database.

The remaining references Gillis and Chen fail to overcome these deficiencies of Johnson, Sulkowski, Atkins, Choy and Foran. Recall that these references were cited only against the remaining dependent claims, and were cited only for containing limitations shown in those dependent claims.

Consequently, the various elements of Applicants' claimed invention together provide operational advantages over Johnson, Sulkowski, Atkins, Gillis, Chen, Choy, and Foran. In addition, Applicants' invention solves problems not recognized by Johnson, Sulkowski, Atkins, Gillis, Chen, Choy, and Foran.

Thus, Applicants' attorney submits that independent claims 1, 16 and 31 are allowable over Johnson, Sulkowski, Atkins, Gillis, Chen, Choy, and Foran. Further, dependent claims 2-4, 8, 11, 13-15, 17-19, 23, 26-30, 32-34, 48, 41 and 43-45 are submitted to be allowable over Johnson, Sulkowski, Atkins, Gillis, Chen, Choy, and Foran in the same manner, because they are dependent on independent claims 1, 16 and 31, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-4, 8, 11, 13-15, 17-19, 23, 26-30, 32-34, 48, 41 and 43-45 recite additional novel elements not shown by Johnson, Sulkowski, Atkins, Gillis, Chen, Choy, and Foran.

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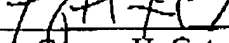
III.   Conclusion

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In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

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